

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: February 17, 2021

LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT

Sarah Large
Matt Urban
Andrew O’Sullivan
Ron Crickard
Mark Hemmerlein
Arin Mills
James McMahon
Rebecca Martin
Hans Weber
Dan Prehemo
Don Lyford
Tim Mallette
Meli Dube
Chris Carucci
Kirk Mudgett
Tobey Reynolds

ACOE

Christopher Marron

EPA

Jeanie Brochi

NHDES

Lori Sommer
Karl Benedict
Ann-Elizabeth Pelonzi
Phil Trowbridge

NHB

Amy Lamb

NH Fish & Game

Carol Henderson
John Magee

The Nature Conservancy

Pete Steckler

**Consultants/ Public
Participants**

Kimberly Peace
Deb Coon

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

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(When viewing these minutes online, click on a project to zoom to the minutes for that project.)

NOTES ON CONFERENCE:**Finalize Meeting Minutes**

Finalized and approved the January 20, 2021 meeting minutes.

Milan, #43228

Arin Mills, NHDOT Environmental Manager, presented the location of the project as a 5' x 7' arch corrugated metal pipe (CMP) replacement which carries NH 110-A over Cedar Brook in the town of Milan. Cedar Brook flows approximately 0.2 mile south into Cedar Pond, and flows from the outlet of Cedar Pond approx. 1.2 miles to the [North Branch Upper] Ammonoosuc River. Cedar Brook is a 1st order stream at the crossing, and therefore no Shoreland Water Quality Protection Act jurisdiction, and is a Tier 3 crossing. Plans were shown of the 1986 original culvert construction, to include the area at the inlet that was presumed to be used as traffic by-pass due to the evidence of disturbance. A tax map was shown, and it was noted the surrounding landscape is rural residential with no conservation lands identified adjacent to the project. The project will require construction and drainage easements which will be obtained prior to the start of work. Photos were shown of the existing roadway, to include the inlet and outlet of the crossing and the surrounding adjacent landscape.

James McMahan, NHDOT District 1, described the project and displayed draft impact plans to show the replacement of the existing 5'H x 7'W squash CMP with a 6'H x 10'W x 52'L concrete open bottom box with stream simulation. Jim further described in proposed inlet and outlet scour protection as well as the cobble-gravel fill to recreate the streambed at the offset alignment. Jim described safety concerns for the area, and proposes extension of the pipe at the inlet and installation of guardrail to improve safety. A photo depicted the existing pipe with the proposed box overlaid. Preliminary impacts are estimated as ~3,000sf for permanent to adjust for the new stream alignment at the inlet and outlet as well as bank stabilization, while temporary are approx. 400 sf for erosion control and regrading. Linear impacts are anticipated at left bank 1356', right bank 160' and channel 140'. Jim mentioned use of the previously disturbed area at the inlet will again be used for traffic bypass during construction. Work in the stream will be for stream simulation for the new pipe alignment. [Arin mentioned the slides provided ahead of the meeting have been revised to include a revised wetland impact plan. The plan shown at the meeting has removed the temporary impact area to the Palustrine Emergent Marsh potential PRA at the inlet from the traffic by-pass and has less impacts]

Jim also described the need for easements from the adjacent landowners, who are amendable to the easement for both construction and maintenance. He stated this project would aim to reuse previous traffic by-pass area and easements where able. Jim described site constraints as utility conflict needed for electric line relocation, who are agreeable to movement. He described this route as a well-used connector for travelers and commercial trucks seeking to travel between NH-110 in Milan and NH-16 in Dummer. This project is in preparation for scheduled road resurfacing in 2022. Design considerations aimed to improve the crossing by use of an open bottom crossing which improves connectivity with streambed simulation. The increased size will also increase capacity for a pipe which is currently undersized and overtops, as well as address the scouring and bank erosion currently seen at both the inlet and outlet of the existing structure. Jim explained the new alignment will more closely match the historic and natural alignment prior to the installation of the current crossing in 1986. The concrete box will support the high volume of logging truck traffic in the area and is also a cost effective replacement which can be completed by District forces. Jim showed the proposed stream profile throughout the proposed crossing, with streambed simulation. He stated the streambed material would address the existing deficiencies, to include the plunge pool and perch at the outlet. The proposed design will match the existing streambed profile at the edge of the easements and address deficiencies. Jim then showed the proposed road profile and again discussed the need to relocate an electrical pole within the project boundary. Jim briefly described the work plan and erosion

control, to include the use of the existing pipe as a clean water bypass during construction. He stated use of the one-way alternating traffic would make use of the previous by-pass used in the 1986 construction at the inlet side of the crossing. Good BMP's will be used throughout construction.

Jim provided the results of the hydraulics analysis, showing both the existing calculations, as well as the proposed open bottom proposed crossing design. The increase in flowable area will nearly double the capacity of the culvert. A reduction of the outlet velocity will also be seen. The proposed crossing is predicted to pass a 100 year storm event. Bank stabilization will include use of loam and vegetation over the stone. Depth and velocity calculation were shown.

Arin then described the results of the environmental review for the project. She described Cedar Brook as a 1st order stream, therefore not requiring protection under the Shoreland Water Quality Protection Act. StreamStats determined the crossing to be a Tier 3, with a drainage area of 2,012 acres. No Designated River within ¼ mile of the project. Cedar Brook is a predicted cold water stream per the Wildlife Action Plan (WAP). A Natural Heritage Bureau database review (NHB20-2969) determined no known occurrences. The Wetlands Permit Planning Tool GIS layer predicted a Bog Priority Resource Area (PRA) at the inlet, although no impacts to palustrine wetlands on the inlet are anticipated with the current proposed design. The WAP data did determine no Eastern Brook Trout or Species of Special Concern are known to occur in Cedar Brook. One dam at the outlet of Cedar Pond is active between the site and the [North Branch Upper] Ammonoosuc River. A review of the NH Fish & Game (NHF&G) Fish survey data determined no coldwater or state listed species are known in Cedar Brook, and Cedar Pond is actively stocked by NHF&G. No FEMA floodplain designation within the project limits. The stream assessment data of the reference reach determined a Rosgen's type 'C' with streambed material 15% sand/75%gravel/10%cobble. The average bankfull width is 9.6' and depth of 1.3', with a compliant structure determined to be a 21' span. US Fish & Wildlife Service species list determined potential Canada lynx and Lothern long-eared bat. A field review determined no impact to habitat for Canada lynx primary food source, and therefore no anticipated effects. A 4(d) rule consistency determination was obtained for the project. Section 106 review for historic resources was complete, with no concerns for impacts.

Sarah commented the proposed design will not meet the NH Stream Crossing Guidelines recommended compliant structure span of 21' and NHDOT seeks approval for an alternative design under the 904.10 rules. Sarah also mentioned the off alignment replacement benefits include the wider span, streambed material simulation throughout, and vegetated banks. The proposed design will restore and improve the system from the existing conditions; narrowed channel at the inlet and large scour pool at the outlet caused by the undersized crossing. Mitigation will be about 1:1 for linear impacts and improvements that include self-mitigating design elements.

Karl asked the existing culvert length and Jim said 48'. Karl also mentioned the WPPT identified the wetland at the inlet as a bog and wants to ensure protection of this resource and to also field verify if it is a bog. Sarah did clarify a field survey was conducted and did determine the soils and plant species did not meet the criteria for a peatland adjacent to the impacts area. Karl mentioned the proposed contours and the need to tie into the existing grades, and ability to incorporate portions of the natural floodplain. Jim did explain cross sections will be included with the application, and does not intend to build channel higher than needed and will incorporate this recommendation. Karl also mentioned the potential for monitoring of the live stakes used for the bank stabilization and revegetation, and requests contours and phasing be included with the application.

Lori appreciated the removal of impacts to the PRA identified by the WPPT. She reviewed the linear measurements to the stream channel and questioned how the measurements were calculated. Jim clarified

the numbers provided are the longest and follow the sinuosity of the channel. Sarah did mention the line will be calculated as straight (as the crow flies) and Sarah did get 1:1 for impacts vs created based on her calculations. Lori would like to know what other additional planting will be used on the project and would like a post construction report and couple years of monitoring for bank revegetation. Lori thinks there may be a need for mitigation; Sarah will meet with DES to confirm mitigation needs prior to application submittal.

Carol appreciates removal of perch and improved connectivity. She confirmed the use of natural stream bottom throughout crossing, Jim confirmed that the design includes natural/ simulated streambed material through the crossing and within the stream channel impact areas. The site is upstream of Cedar Pond where there is a documented Loon nest; the site is a ¼ mile upstream of the Pond and therefore would not cause disturbance of Loon nesting.

Amy L does not have record of PRA (bog) nor the wetland being an exemplary natural community, or records of rare plants in area. She offered review of planting plans if needed. Chris M said Request for Project Review) RPR will be required, and Arin and Matt U said the internal cultural review and qualified for Appendix B of Programmatic Agreement and will be included with the application package. Canada lynx, no effect. Any trees >3" dbh being cut and Jim confirmed will at outlet. Arin confirmed consistency letter was obtained for the bat.

Jeanie had no comments. Pete S had question why a wider structure was not proposed to accommodate wildlife passage and meet geomorphic compatibility. Jim explained there is a flat shelf inside the box to accommodate wildlife passage in times of low flow. Phil T and Liz had no additional comments.

This project has not been previously discussed at the Monthly Natural Resource Agency Coordination Meeting.

Newton, #29617 (X-A004(206))

Hans Weber provided an introduction to the project. He explained that the project proposes improvements to the NH Route 108, Amesbury Road, and Maple Avenue intersection in Newton, NH. This intersection is known as Rowe's Corner. He described the project schedule including the public informational meeting that was held in August 2020 and a proposed public hearing in spring 2021. H. Weber explained the project is needed to address the uncertainty for drivers that currently exists at the intersection. Currently NH Route 108 does not stop at the intersection, but Maple Avenue and Amesbury Road have stop signs. There is a flashing beacon in the intersection. Since Route 108 takes a distinct curve through the intersection and there are multiple slip ramps, the intersection can be confusing for drivers. H. Weber noted the crash history at the intersection.

Two alternatives had been considered for the intersection, a four way stop with elimination of the slip ramps and a roundabout. The Newton Select Board had indicated that the four-way stop is the preferred alternative, so the NHDOT is planning to pursue the four way stop as the preferred alternative.

H. Weber showed a preliminary plan for the four way stop (preferred) alternative, not including the culvert work. He explained that the green areas represents slope impacts (cuts and fills). Truck aprons are also proposed. H. Weber also explained that there is a culvert on Amesbury Road of unknown age that will be addressed as part of the project. Feedback is needed on the best alternative for replacement. Photos of the inlet and outlet of the culvert were shown. The culvert was not originally part of the Newton 29617 project. The Bureau of Environment and Maintenance (District) have encouraged that the culvert be addressed as part of the project due to its poor condition. The project budget cannot support a compliant sized structure,

so the team intends to apply for an alternative design. A water quality feature (BMP) is proposed in the bottom south east corner of the intersection, a conservation property. If the culvert were replaced, the impacts at the culvert outlet would also extend onto this Town owned conservation property. On the southern two quadrants, effort is being made to construct slopes with minimal impacts to wetlands.

The Amesbury Road culvert seems to have been extended with multiple materials. The date of construction and the original materials are unknown.

Rebecca Martin explained that the wetland delineation and stream crossing assessment were completed for the project. The Amesbury Road culvert is an unnamed Tier 2 stream. A compliant structure, which is not proposed, would be 13' wide. There is another crossing on NH Route 108 located west of the project area and upstream of the subject culvert (36" sliplined culvert) and upstream of that crossing is a private dam. The project does not propose any impacts to the culvert or dam upstream. R. Martin briefly described the types of wetlands in the project area, including palustrine forested and palustrine emergent/palustrine scrub shrub wetlands. She commented that the project area is in an MS4 community and stormwater treatment is planned. The Northern Long Eared Bat was identified as potentially being in the project area. R. Martin shared that the new Natural Heritage Bureau report includes the Spotted turtle and Blanding's turtle. She said that she initiated coordination with NH Fish and Game Department and recommendations will be taken into account during project design.

The quadrant where the stormwater treatment swale is proposed is located is on Town owned conservation land. No LCHIP, LCIP/CLS, or LWCF funds were used to purchase the property. R. Martin has contacted the Conservation Commission to ask about the terms of the easement on the property, but hasn't received a response to date.

R. Martin described that the Wildlife Action Plan did not include any areas within the project area, but Green- highest ranked habitat in region and Orange- supporting landscape are located downstream of the Amesbury Road crossing. The Nature Conservancy's Connect the Coast effort did cover this area, but no corridors or habitat blocks are located in the project area.

H. Weber provided more details about the existing 48" equivalent diameter cast in place culvert under Amesbury Road that is proposed to be replaced. We are unclear on the exact size of the pipe, due to it being buried. District has been asked and has not informed the project team of any flooding issues. There are no floodplains or floodways mapped in the project area. The existing system would be expected to overtop the road at 55 cubic feet per second and the outlet velocity is 7.4 feet per second.

H. Weber explained that due to project constraints including the budget, right-of-way, and potential historic resources near the culvert, an alternative design is proposed. Two options are being considered and input about which would be preferred would be helpful moving forward. The first alternative, which seems to be preferred, is to replace the structure with a 60" embedded RCP with a 36" CMP overflow pipe, which would usually be dry and could function as a critter crossing. The second option is for twin 48" RCPs. Material would deposit in the pipes during storms and gradually over time and be transported through the culvert during high flows. There is some concern about the compaction between the 48" RCPs. H. Weber also mentioned that there is the option to do nothing and continue to try to maintain the current pipe. The 60" embedded RCP with a 36" CMP overflow pipe would overtop the road at 202 cubic feet per second, with an outlet velocity of 9.0 feet per second. The twin 48" pipes were modeled with no embedment and that system would overtop the road at 266 cubic feet per second, with an outlet velocity of 9.7 feet per second. A cross section of the 60" RCP plus 36" CMP was shown. It depicts some separation at the inlet (around 15 feet) with the outlets being close together in the existing channel.

Karl Benedict shared his comments on the project:

- According to 904.07, Tier 2 stream crossings must pass a 100-year storm event.
- Commented that the preferred alternative would be an alternative design.
- The preferred alternative fails to meet design criteria from the perspective of hydrology and geomorphology. * T. Mallette added for the minutes that this is in part because of an historic privately owned dam upstream.
- It would be challenging to permit the preferred option.
- He recommends a third hydraulically sized option be explored that accommodates the Ordinary High Water and the 100 year storm.
- Asked about 2:1 slopes in the southwest quadrant to minimize wetland impacts.
- Recommended reviewing AoT and MS4 compliance needs.

Tim Mallette shared some additional details of the hydraulic analysis, including that the design flows were based on information provided by the Dam Bureau from their recent breach analysis, which are very conservative. T. Mallette also commented on the bath tub like landscape at the culvert inlet and very organic sediment. He explained that the current design would be trying to keep up with the 36” sliplined culvert upstream under NH Route 108. He explained that a 100-year storm (estimated at approximately 226 cubic feet per second) could overtop NH Route 108 upstream. T. Mallette has shared that the 60” RCP with the 36” CMP will overtop Amesbury Road at approximately the 89 year storm event using 20” of embedment.

- T. Mallette noted (for the minutes) that for some projects in the past passing a 100-year storm has been interpreted to mean safely pass the event. That does not necessarily mean the road will not overtop – especially for areas that are ponding on both sides of the road with a relatively low head drop for a short duration. Culverts are designed for the 50 yr. event.

Lori Sommer shared her comments on the project:

- Concerned about Priority Resource Area for the State listed turtle species. R. Martin explained that the turtle records were a distance from the project area.
- Asked about an alternative location for the treatment swale; H. Weber explained why the other possible locations were not preferred due to the slope of the intersection, reducing wetland impacts and reducing ROW impacts.
- Commented that impacts on the conservation land may need to be coordinated with the Charitable Trust Bureau.
- Generally concerned about the size of the “preferred alternative” (60” RCP w/ 36”CMP overflow). She wonders if a third pipe might be dry more often and commented on turtle passage. T. Mallette explained that the crowns of the 60” and 36” pipe are currently matching, so the 36” structure would be dry until a little before the 10-year storm.

Carol Henderson shared her comments on the project:

- Commented that she has no concerns with the 4-way stop being the preferred alternative for the intersection.
- She commented that if AoT applies, it may be appropriate to complete a habitat survey in the project area. She mentioned the turtle species in the area.
- Suggested considering improved aquatic organism passage.
- She asked for new NHB number, which Amy Lamb provided as NHB21-0493.

Amy Lamb commented:

- No state listed plants or exemplary natural communities are in the project area.

Chris Marron:

- Began to express concern about clearing needed for construction, but R. Martin explained the NLEB FHWA Programmatic Agreement would apply and the project will probably be a Likely to Adversely Affect project.

Pete Steckler:

- Raised the issue of a flood mitigation report from 2016 that identified Newton's North Main Street as a flood risk area.
- Concerned about outlet erosion protection with the two different sized pipes and tying in the 36" pipe. Suggested considering how to stabilize the outlet without using angular riprap.
- Concerned about whether the outlet water could back up into overflow pipe and inhibit terrestrial passage through the intended dual purpose "critter pipe".

Tim Mallette agreed that no stone need be in the outlet pool. He said the outlet would be in the same pool where it is located now and the dissipation in the pool is adequate to reduce water velocities. He commented that he had seen catfish when he visited the stream. T. Mallette said that the invert outlet of the 36" CMP could be adjusted to keep it dry.

This project has not been previously discussed at the Monthly Natural Resource Agency Coordination Meeting.

Bow, #42704 (X-A004(950))

Chris Carucci gave an overview of the project, presented existing conditions data and discussed the proposed NR impacts. The project involves the rehabilitation of two corrugated metal pipe culverts (CMP) located under Interstate 89 NB and SB travel lanes just west of the crossing under Interstate 93 in the Town of Bow. The western culvert is a 292' long 48" diameter CMP that conveys an unnamed Tier 1 stream with a drainage area of 144.4 acres and outlets directly into the Turkey River. The eastern culvert is a 223' long 18" diameter CMP with a drainage area of 14 acres that acts as an equalizer pipe conveying stormwater runoff from a wetland on the south side of I-89 under the highway and outlets directly into the Turkey River. The eastern culvert is within the ¼ mile buffer of the Merrimack River. The goal of the project is to rehabilitate the culverts to prevent further deterioration so that they remain fully functional. The proposed method of rehabilitation will be sliplining the 48" CMP using a cured-in-place liner, and sliplining the 18" CMP with a 12" smooth interior pipe liner.

Karl Benedict opened the discussion by inquiring how bypassed water will be handled during construction for the 48" CMP. C. Carucci stated this will be up to the Contractor's Stormwater Pollution Prevention Plans (SWPPP) means and methods, but that stream flow could be pumped through the 48" pipe for most of the duration of work. He also stated the pipe would need to be dry for a short period of time, maybe only a few days, to install the liner and that they could allow for water to pond at the inlet since there is room depending on flows at that time. Any bypass water would need to be pumped to a dewatering basin/bag before outletting.

K. Benedict said that it would be good to aim for low flow periods and what is presented seems to be appropriate for managing water. He concurred with slip lining under Env-Wt 904.08 and Env-Wt 904.01 as long as AOP is met. The permitting path would be a single minor permit for the project (both culverts) because the work is rehabilitation, and impacts would be temporary, with no mitigation unless Lori says otherwise.

K. Benedict asked if the project is located in FEMA-mapped floodplain. C. Carucci stated yes but fill in the floodplain is not anticipated.

Lori Sommer noted the NHB Datacheck listed the state-threatened spotted turtle and state-species of special concern wood turtle and has a concern about impacts from the future Bow/Concord project as being cumulative to turtle habitat. Carol Henderson confirmed that the potential impacts to turtles or their habitat will need follow-up coordination with Kim Tuttle, NHF&G. C. Carucci responded that the current preferred alternative for the Bow-Concord project proposes significant changes to I-89 and ramps but does not impact the majority of the culvert barrels, the outlets, or the Turkey River. The inlet areas of the 48" and 18" cmp's would require some modification. Start of construction is estimated to be at least 10 years away. Kimberly Peace stated that we have worked with NHF&G to avoid impacts to turtles using their guidelines such as avoidance of the use of welded plastic or 'biodegradable plastic' netting or thread (e.g. polypropylene) in erosion control matting. L. Sommer stated no mitigation would be necessary pending NHB or NHF&G verification.

L. Sommer stated the project would need an AoT permit, which would include a wildlife assessment. Mark Hemmerlin stated that he was not sure that an AoT will be required, and this will be reviewed.

John Magee asked if it was possible to do something like the fish ramps that were installed in Warner to address AOP but noted that it is challenging here since the pipe is below certain river flows and velocities here can be high. C. Carucci stated the pipe that outlets into the Turkey River would be mitered/cut back and missing stone would be replaced to make the pipe flush with the bank which would return the area to the way it was originally. Sarah Large also noted that installing something would be a challenge in that the pipe/steam flows perpendicular to the flow of the Turkey River. J. Magee stated that it sounds like a good idea but requested a site visit to review the existing conditions. Meli Dube stated she would schedule a site visit.*

Amy Lamb stated she had no comments on the project as there are no plants or communities of concern.

Pete Steckler asked if the elevations would be conducive to combine these structures into one structure. C. Carucci stated that this would not be something that DOT would propose as part of a culvert rehabilitation project. This type of proposal would require abandoning a structure and realignment of the stream, and in this situation the crossings are too far apart and not hydraulically connected.

*Footnote: A site visit to review the 48" cmp outlet was held on March 3, 2021 with John Magee, and NHDOT personnel Meli Dube, Chris Carucci, Paul Metcalf, and Mike Strozewski. All agreed with the proposed concept, to trim off some of the 48" pipe to better match the existing riprap bank and reset some stones under and around the end of the pipe to eliminate the perch. Due to the difficulty in getting equipment down the very steep slope, it was suggested to use using smaller stone that could be hand placed and mortared in place. A sand bag 'cofferdam' or other approved method would be used to make sure no wet concrete ends up in the river.

This project has not been previously discussed at the Monthly Natural Resource Agency Coordination Meeting.